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Stefanic et al.

[11] **4,306,475**

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[54] **TRIM CLEANING APPARATUS**

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Related U.S. Application Data

[63] Continuation of Ser. No. 877,850, Feb. 15, 1978, abandoned.

[51] **Int. Cl.**[3] **B26D 7/18**

[52] **U.S. Cl.** **83/99;** 83/100; 83/152

[58] **Field of Search** ..... 83/98, 99, 100, 103, 83/152, 154; 93/36 A

[56] **References Cited**

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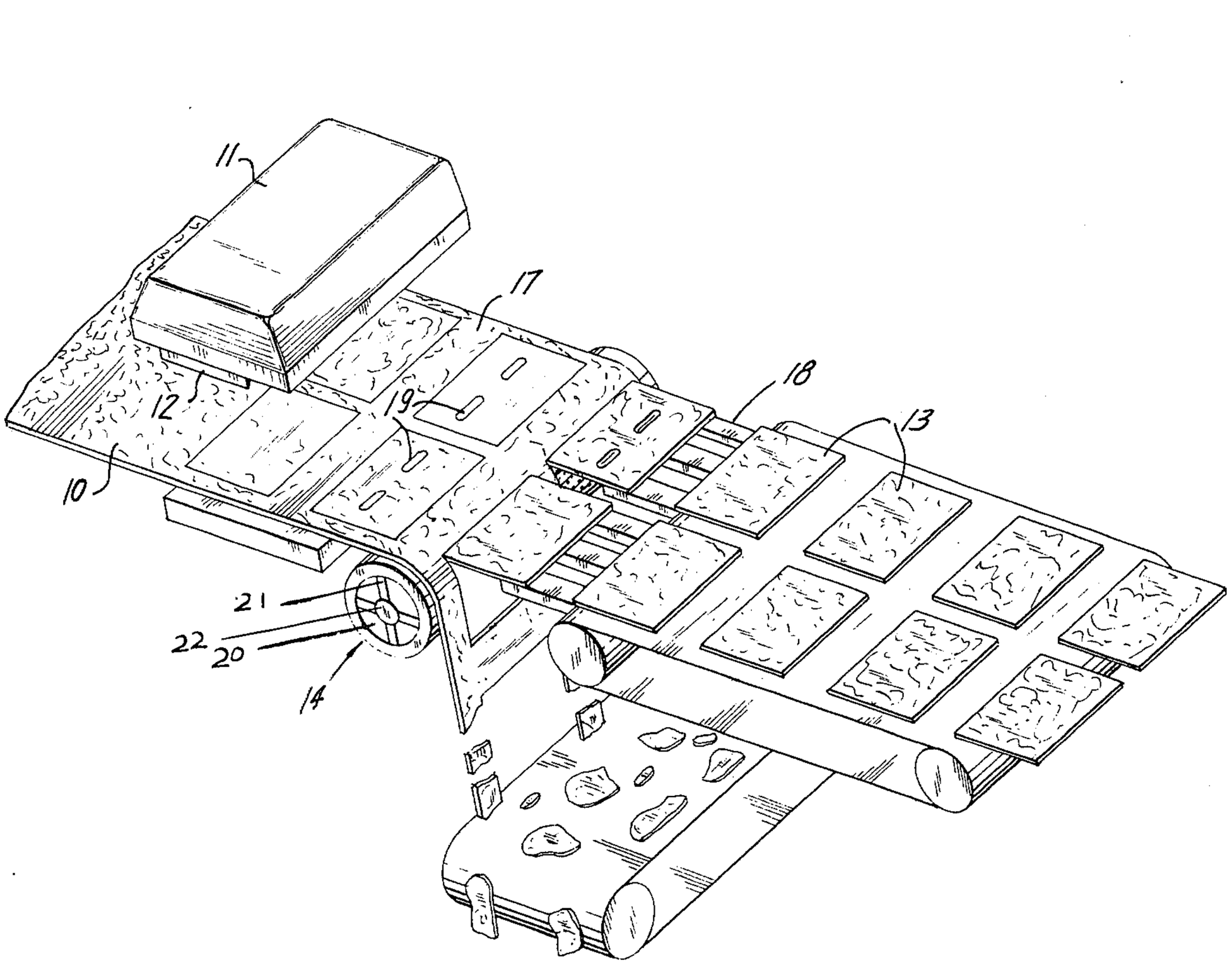
[57] **ABSTRACT**

A continuous automotive felt die cutting press, cuts pattern out of a web passing through it. After exit of the web from the cutting press, the cut patterns and web are passed over a perforated roller that rotates about internally segmented zones having a plurality of removable solid and perforated sleeves. The roller is capable of transmitting a vacuum or a pressure through any one of its internally segmented zones with directional and force control being partially provided by the removable sleeve placement on the segmented roller. Base guides, which are adjustable, are located in the area between the perforated sleeves to provide a solid base for the cut patterns to rest upon during their vacuum separation from the web. After vacuum separation of the cut pattern from the web the cut patterns are transported by conventional apparatus to a storage area, while the web, which remains secured to the perforated segmented roller through its vacuum stage, is separated from the roller during the rollers pressure stage and transported by conventional apparatus to a scrap storage area.

2 Claims, 4 Drawing Figures



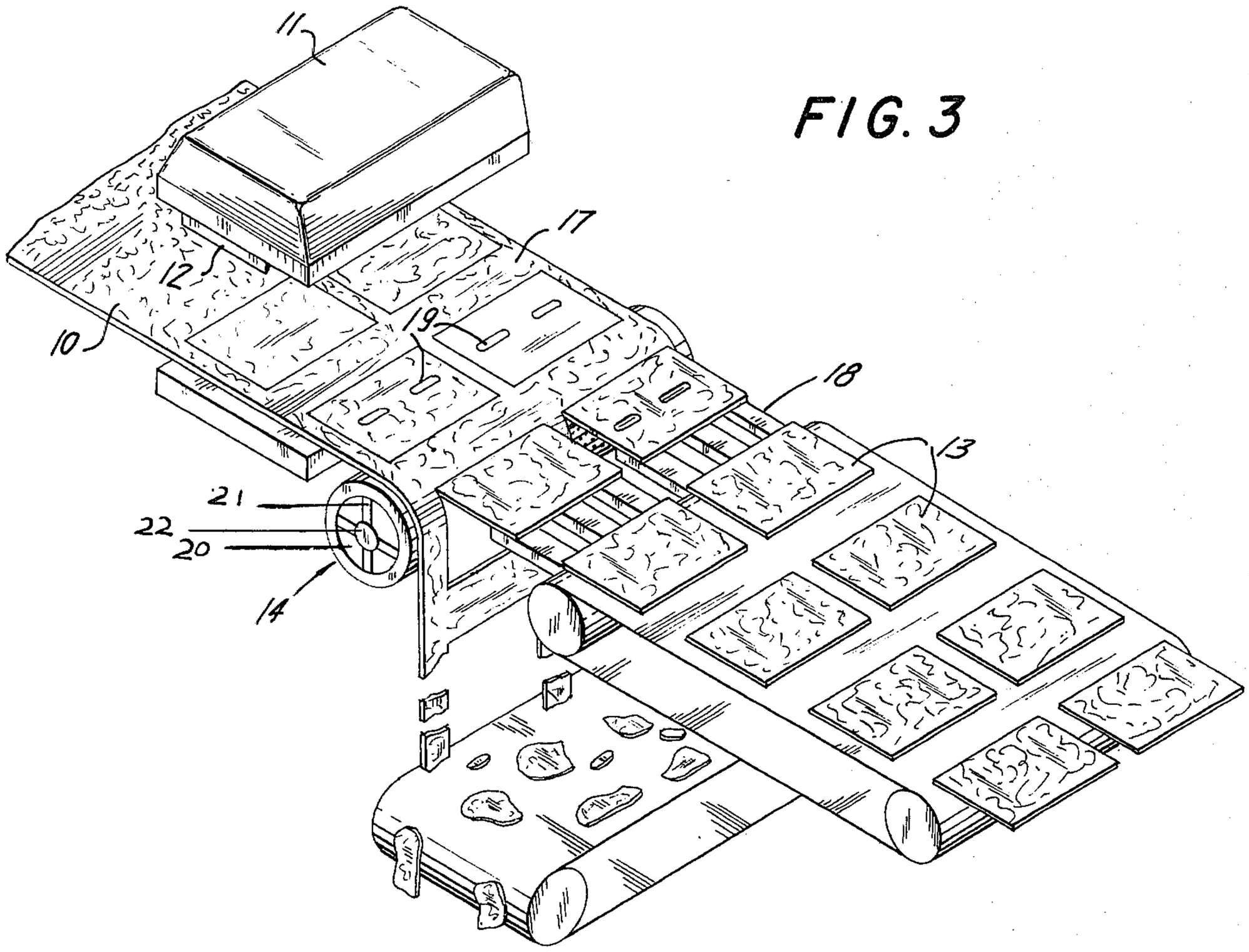


FIG. 3

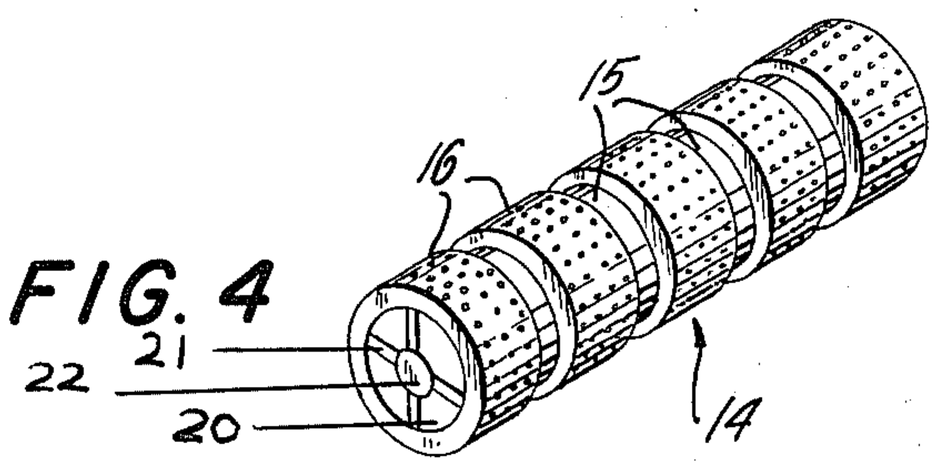


FIG. 4

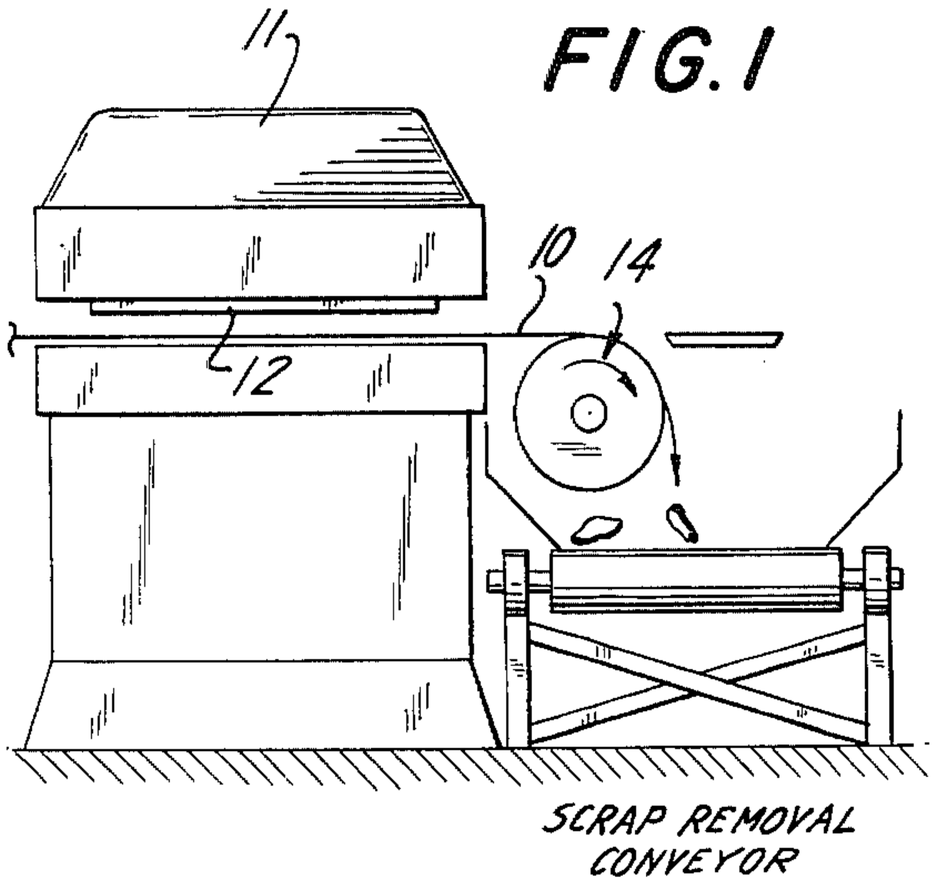


FIG. 1

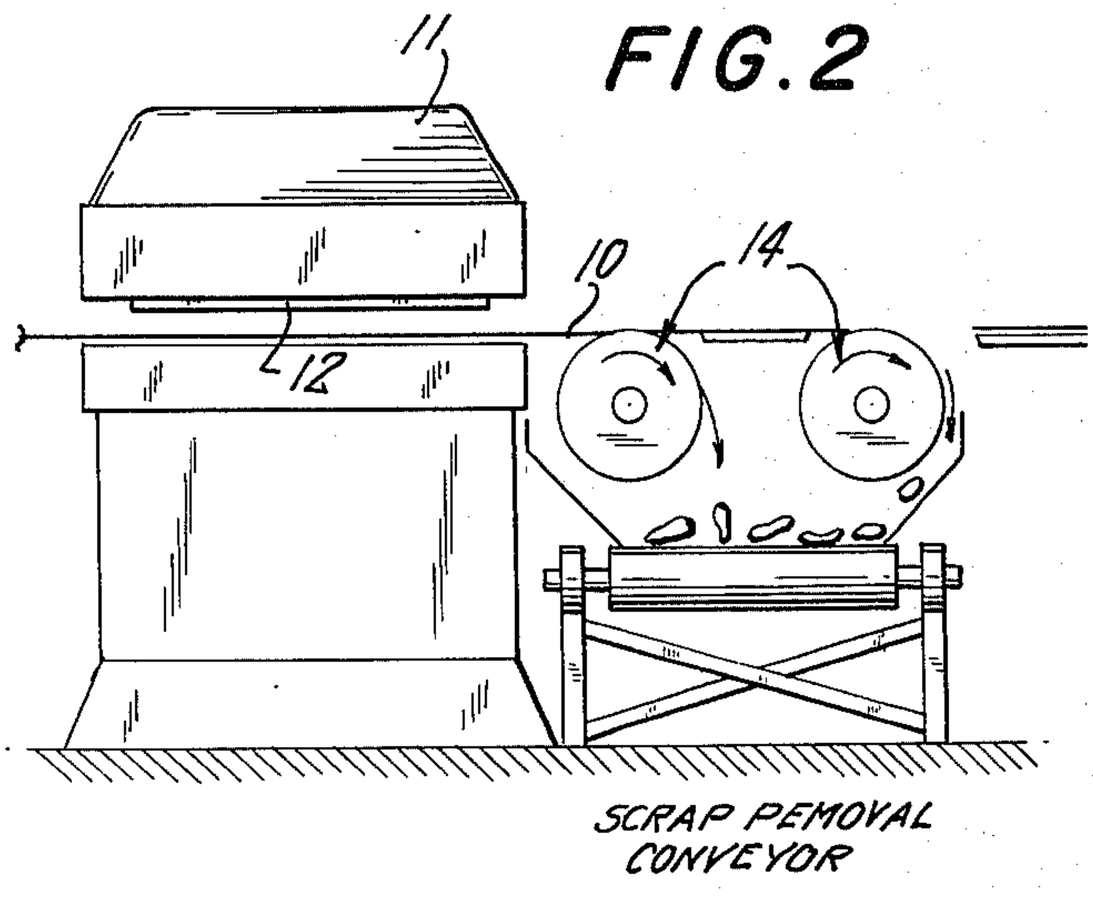


FIG. 2

TRIM CLEANING APPARATUS

This is a continuation of application Ser. No. 877,850, filed Feb. 15, 1978, now abandoned.

BACKGROUND OF THE INVENTION

In prior vacuum stripping operations the rollers that have been used for stripping waste from the cut patterns have operated at a low vacuum and without adjustment means to control the direction or force that the vacuum or pressure exerts upon the web. While this method has been affective in the area of fabric die cutting, where the cut is usually clean, and only requires a small amount of vacuum to separate the cut portions, it is not the case when asphalt saturated foam backed felt web is being cut, since the die cut is not usually clean and requires a high vacuum to separate the uncut and cut portions of the web. The high vacuum, however, tends to cause the asphalt felt to stick to the roller after the vacuum is released and therefore there has been a need for a release and cleaning system for the vacuum to properly separate the cut patterns from the asphalt web a solid base for backing the cut pattern is needed to prevent ripping which would normally destroy the cut patterns.

The object of this invention is to have a segmented pressure vacuum roller that is capable of exerting a high vacuum or pressure in addition to having adjustment means for directional and force control along the length of the roller.

SUMMARY OF THE INVENTION

The present apparatus is an automotive felt cutting die press, that operates in conjunction with a segmented pressure vacuum roller capable of providing vacuum and pressure force and directional control for separating cut portions of asphalt saturated foam backed felt from a web of asphalt felt as well as providing roller release and cleaning capabilities.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of a die press and a trim cleaning apparatus using one variable vacuum-pressure roller.

FIG. **2** is a side view of a die press and a trim cleaning apparatus using two variable vacuum-pressure rollers.

FIG. **3** is a perspective view of a die press and trim cleaning apparatus using one variable vacuum-pressure roller.

FIG. **4** is a perspective view of a variable vacuum-pressure roller.

DESCRIPTION OF A PREFERRED EMBODIMENT

A web of asphalt saturated foam backed automotive felt **10**, is feed into a cutting press head **11**, containing a cutting die **12**. Cutting die **12** is constructed to cut web **10** into desired patterns **13**, upon activation of press head **11**. The web **10** and cut patterns **13**, move, after the cutting towards a vacuum-pressure roller or rollers **14**. Vacuum-pressure roller or rollers **14** may be perforated over their entire surface or over only select portions of their surface and are adapted to receive removable non-perforated sleeves **15** and removable perforated sleeves **16** which may be totally perforated or only perforated in selected zones. The roller or rollers **14**, however, have internally segmented zones **20**, about which it rotates, representing vacuum, pressure and neutral stages of roller **14**. As the felt web **10** and pattern pieces **13** cross over the revolving vacuum-pressure roller **14**, that portion of said roller that is covered by perforated sleeves **16** contacts the uncut portion **17** of web **10**. Base guide means **18**, located between perforated sleeves **16** of roller **14**, contact the cut portions **13** of web **10**. The vacuum transmitted from any or all of the struts **21** or the center core **21** into all of the zones **20** through perforated sleeves **16** during the vacuum stage, holds the uncut web portion **17** of web **10** tightly to said roller **14**. The cut patterns **13**, are not affected by the vacuum because the non-perforated sleeves, **15** prevent the vacuum from flowing in that area. The cut patterns **13**, are just prior to separation, in contact with base guides **18**, which act as a support for said cut patterns **13**, as the vacuum stage of the vacuum-pressure roller exerts a vacuum force upon web **10** causing separation of the uncut portion **17** from the cut patterns **13**. The cut patterns **13** after separation are conveyed to a storage area by way of a conveyor belt or other conventional transport means while the uncut portions or scrap parts **17**, of web **10**, still secured to vacuum-pressure roller **14**, pass through the pressure stage of the vacuum-pressure roller **14** causing the scrap parts **17** to be forced out of contact with the vacuum-pressure roller **14** as well as cleans the perforation on said roller. The pressure like the vacuum may be exerted through any or all of the struts **21** or through the center core **22** into any or all of the zones **20**. The scraps **17**, are then transferred to a scrap area by way of a conveyor belt or other conventional transport means. The vacuum or pressure exerted through the struts **21** or core **22** may be created by any conventional pressure or vacuum creating means and transmitted to said roller **14** by conventional means.

If one requires that cut patterns **13** should have portions removed, such as slots **19**, this is accomplished by adding another vacuum-pressure roller **14**, with sleeves **15** and **16** as well as base guides **18**, placed in conjunction with one another to provide vacuum to the slot areas **19**, which are to be removed, while providing support structure to the patterns **13**, through base guides **18**, to prevent ripping during separation of slots **19**, from cut patterns **13**.

We claim:

1. A continueous felt web cutting apparatus comprising a felt pattern cutting means, a first conveying means for conveying cut felt patterns as well as the felt web, a base guide means supporting the cut felt patterns located beneath said patterns, a rotating internally segmented pressure-vacuum perforated roller felt web separating means located beneath both the felt web and the base guide means, perforated and nonperforated sleeves removably mounted on said roller transmitting and restricting respectfully a flow of pressure-vacuum from the internal segments of the roller to the felt web, the base guide means being further located between the perforated sleeves and above the nonperforated sleeves, said felt web and cut patterns having contact only with the perforated sleeves and base guide means during separation.

2. A continuous felt web cutting apparatus according to claim **1** wherein the support means are comprised of a number of spaced members to give support to the cut patterns while allowing vacuum to be exerted on the felt web.

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